3. Seriatopora spinosa, Edwards & Haime.

Seriatopora spinosa, Edwards & Haime, Corall. iii. p. 312.

Seriatopora spinosa, Klunzinger, Die Korallthiere d. Rothen Meeres, Th. ii. p. 72.

Funafuti; 20 fathoms. A young colony.

EXPLANATION OF THE PLATES.

Plate LVI.

Fig. 1. *Pocillopora glomerata*, n. sp., ×½, p. 951.
Fig. 2. *Pocillopora obtusata*, n. sp., ×½, p. 945. In the upper part of the figure is a young colony of *Madrepora violacea*, Brook.
Fig. 3. *Pocillopora favosa* (Ehrenberg), ×½, p. 946.
Fig. 4. *Pocillopora coronata*, n. sp., ×½, p. 949. 4 *a*. Single calice of same, p. 949.
Fig. 5. *Pocillopora septata*, n. sp., ×½, p. 943. 5 *a*. Single calice of same, p. 943.

Plate LVII.

Fig. 1. *Pocillopora clavaria* (Ehrenberg), ×⅔, p. 945.
Fig. 2. *Pocillopora rugosa*, n. sp., ×⅔, p. 950.
Fig. 3. *Pocillopora grandis* (Dana), variety, ×⅔, p. 951.

5. On a Collection of Mammals from Morocco. By W. E. de Winton, F.Z.S.

[Received December 1, 1897.]

Owing to the difficulty of entering the country on account of the inhospitality of the inhabitants, very little is known of the fauna of Morocco, and, as is usual, the least known are the Mammalia. Practically nothing has been done in the way of collecting during recent years, and such animals as are known have almost entirely been obtained alive for trade purposes, or have been collected in the neighbourhood of the coast-towns frequented by Europeans. It was with great pleasure therefore that I undertook, at the request of Mr. J. S. Whitaker, F.Z.S., the task of working out the present collection made by Mr. E. Dodson, a young naturalist, who went out on behalf of Mr. Whitaker in the spring of this year to collect birds and mammals in that country. Going inland from Tangier, the ordinary trade-route was taken to Fez, thence to Mekinez and back to the coast north of Rabat. Hence the coast-route was taken southward to Mazagan, thence striking inland to Morocco city.

From Morocco city Mr. Dodson first visited the Great Atlas range to the south at Amsmiz and penetrated to Imintella; then, retracing his steps to Amsmiz, he followed the northern slopes to Iminzat; from here the mountains were again visited, stays being made at Enzel, Zarakten, Tetula, and Glarvi (? Glauwi); thence he returned south of Morocco city *via* Fruga, Sierzet, and Ogadel to Mogador on the coast. Ras el Ain, in the Province of Haha, and Ecru were the most southerly points visited.

The collection consists of 64 specimens belonging to 13 genera and 21 species, of which three are new to science. The primary object of the expedition being birds, the collection of mammals is very creditable, but it is to be regretted that, owing to want of knowledge of what was rare, more persistent search was not made when novelties were hit upon. The skins are well prepared and most carefully labelled with data.

1. Pipistrellus kuhlii (Natt.).

Vesperugo kuhlii, auct.

For the reason of change in the generic name of this Bat, see Miller, Ann. Mag. N. H. 1897, ser. 6, vol. xx. p. 383.

Two specimens, taken at Ras el Ain, Province of Haha, 31° N., 22nd June, 1897.

2. Myotis myotis (Bechst.).

Vespertilio murinus, auct., nec Linnæus.

For change of name, see Miller, *loc. cit.*

Six specimens, all taken in a vault at Mekinez, 3rd April, 1897.

3. Crocidura (Cr.) whitakeri, sp. n.

Colour drab-grey above, white beneath: tail drab-grey above, white beneath. Excepting the tail this animal agrees in colour with *Cr. fischeri*, Pagenstecher, Jahrb. d. Wissensch. Hamburg, ii. 1884, p. 34, pl. fig. i.; the size, however, is very much smaller.

Type ♂ (?). Sierzet, about halfway between Morocco city and Mogador, 5th June, 1897. Collector's measurements:—Head and body 62 millim.; tail 28; hind foot 11.

Skull, base damaged:—End of nasals to back of parietals (middle line) 13 millim.; greatest breadth 7·7; interorbital constriction 3·5; front of incisors to back of auditory bullæ 16; front of incisors to back of palate 8·3; tip of incisors to tip of large premolar 4·1; outside $\frac{ms.^2}{}$ 5·6; mandible, back of condyle to front of $\frac{}{i.^2}$ 8·5, height at coronoid 4·3.

Compared with *C. crossei*, Thos., from Asaba on the R. Niger, the new Shrew is smaller, the tail is much shorter in proportion, and the underparts white; the skull is smaller, the palate narrower, and shorter in the basicranial portion; the large upper incisor is stronger, more rounded in front and not so abruptly turned down.

The hindermost of the two small unicuspid teeth, which is both slightly shorter and smaller in cross-cut than the foremost, is much crowded between this tooth and the large premolar; whereas in *C. crossei* the two small teeth are nearly of the same size, and there is a clear space between the hindermost and the large premolar and no crowding.

With the exception of one species from Somaliland, *C. nana*, Dobson, this is the smallest true *Crocidura* known, and is a most interesting addition to the fauna of this region.

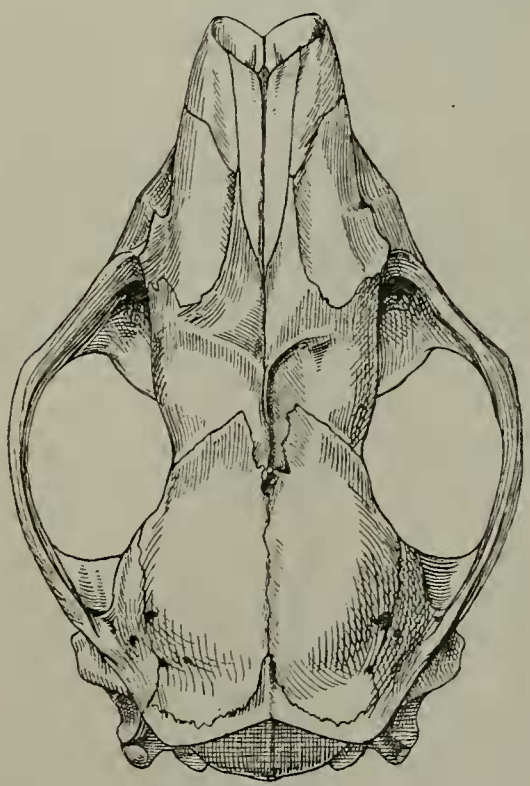
4. Erinaceus algirus, Duv. & Lereb.

Erinaceus algirus, Duvernoy & Lereboullet, Mém. Soc. Strasb. iii. 1840, fasc. 2, p. 4; Anderson, P. Z. S. 1895, p. 419.

2 specimens, ♂ ♀. Schaf el Kab and Ras el Ain, Haha.

The white forehead and underparts usually characteristic of this species cannot be taken as constant. The specimen from Schaf el Kab has the dirty drab-brown colouring generally found in *E. europæus*. The size and colour of the claws will always distinguish these species outwardly: in *E. algirus* the claws are narrower and pale horn-coloured in the dry skin, while in *E. europæus* they are stronger and black. There is no appreciable difference in the texture of the hair of the underparts, and certainly nothing to account for the stress laid by Duvernoy on the softness of the fur in the type specimen. The skulls of these two species are very readily distinguished. Viewed from above that of

Fig. 1.

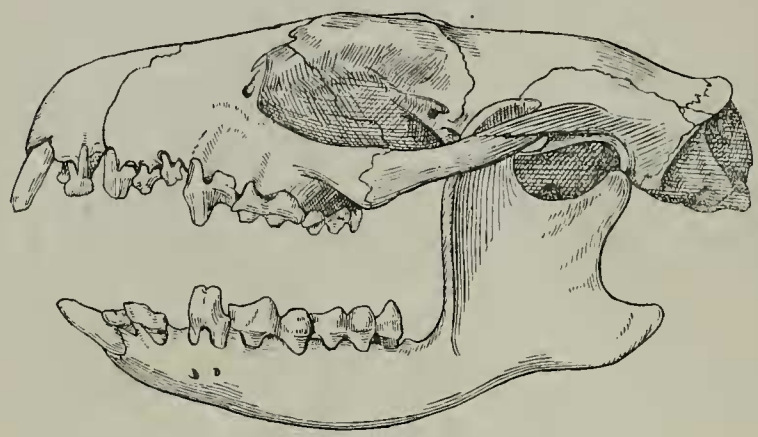


Skull of *Erinaceus algirus* (top view). 1½ nat. size.

E. algirus (fig. 1) has much broader nasals, and the sagittal crest for attachment of the muscles extends on to the frontals to fully half their length in the middle line, while in *E. europæus* this ridge is confined to the parietals. Viewed from beneath, the palatal

bridge is broader in this species, owing to the postnarial aperture being somewhat boned over; they agree, however, in the form of the pterygoids and in the width and formation between the auditory bullæ. The dentition (fig. 2) shows considerable differences; the

Fig. 2.



Skull of *Erinaceus algirus* (side view). 1½ nat. size.

most marked are as follows:—the very small $\frac{i.\ 2}{\ }$ grows diagonally from behind, or on the inner side of $\frac{i.\ 3}{\ }$, so that when viewed from the side the base does not appear, and in aged animals when the teeth are somewhat worn looks simply like a horizontally projecting cusp of $\frac{i.\ 3}{\ }$ (the smallness of this tooth led the describers to suppose that in the type specimen it was abnormally backward in development); while in *E. europæus* this tooth $\frac{(m.\ 2)}{\ }$ is in the row and about $\frac{2}{3}$ of the size of $\frac{i.\ 3}{\ }$; the tall premolar in the lower jaw has only a very slight notch between the two outer cusps, and the inner cusp is almost entirely wanting. The most remarkable feature in the dentition of *E. algirus*, and which will distinguish it at once from *E. europæus*, is the number and form of the roots in the usually single-rooted teeth; in one specimen of the present collection $\frac{i.\ 3}{\ }$ has three distinct roots; the canines have two roots widely separated forming a distinct V, while in *E. europæus* it is the exception for this tooth to be double-rooted, and then the roots lie close together; the premolars are also two- or three-rooted, with the fangs widely divergent.

The British Museum contains a specimen of *E. algirus*, presented by Lord Lilford, said to have come from Andalusia; if this locality is correct (and there is every reason to suppose it is), the fact is of particular interest, adding another to the list of North-African species found in the Spanish Peninsula; and the interest is further enhanced because *E. europæus* certainly occurs in the neighbourhood of Seville. Thus these two forms would be living side by side.

5. Canis anthus, F. Cuv.

♂. Ras el Ain, Haha, 27th June, 1897.

Collector's measurements:—Head and body 760 millim.; tail 295; hind foot 165; ear 100.

6. Vulpes atlantica, Wagn.

Canis vulpes, var. *atlantica*, A. Wagner, Reisen Regentsch. Algier, v. M. Wagner, Bd. iii. p. 31 (1841).

Vulpes sp., F. Cuv. (Renard d'Alger) Mam. Lith. no. 177, vol. iii.

♀. Ras el Ain, Haha, 20th June, 1897.

Head and body 525 millim.; tail 345; hind foot 118; ear 85.

The fur of this single specimen is peculiarly free from the grizzling usually found in Foxes; the fore and hind legs and feet are bright red, with no black markings; the hind feet have a whitish stripe coming from the inner side of the heel and extending down the front of the foot to the toes. The general colour of the animal is bright orange-red, the tips of the underfur being very foxy-red. The belly is clothed with maroon-brown fur—a character, however, which would not be constant.

The skull-measurements are:—Extreme length 120 millim., breadth 65, basal length 112, front of canine to back of carnassial 42. The lower jaw shows an extra molar on both sides, that on the left side has two distinct complete crowns. These supernumerary molars are very rare in the Common Fox, as pointed out by Hensel, Morph. Jahrb. 1879, and Bateson in 'Variation,' p. 219 (1894); there is no instance among the series of *V. niloticus* in the British Museum. A good figure of the animal is given by F. Cuvier (*tom. cit.*).

7. Genetta genetta (L.).

♂. Ras el Ain, Haha, 4th July, 1897.

Head and body 460 millim.; tail 430; hind foot 90; ear 48.

8. Xerus getulus (L.).

Fourteen skins with skulls, 9 ♂, 5 ♀, Glarvi, Enzel, Ras el Ain, Haha, and Ecru, from April to July; the first two localities are on the Great Atlas range east of Morocco city, the last two near the coast south of Mogador.

A nice series of different ages. In old and young the belly is very thinly clothed with hair. Adult females show the mammæ very plainly; these are large and black, all on the belly and groins: thus the formula is 0—4=8. The young are darker in colour, showing less brown on the back, with the underparts sooty. The tail is very decidedly distichous; in the adult there are 4 light rings and 3 black, in the young 3 light and 2 black. The fur is less harsh and brittle than in the typical *Xerus*, but there is no underfur.

There are some interesting peculiarities in the construction of the palate and pterygoids of the young animal which do not seem

to have been recorded, not confined to this species, being common to all true *Xerus*, but not found, I believe, in any *Sciurus*. In the first place the middle of the palate is much arched and scooped out or concave, leaving a prominent ridge of bone on either side next the molar series. Secondly, the pterygoids are so peculiar that it is hard to follow the homologies of the perfect bones of the adult; there is a prominent wing-like ridge, apparently a continuation of the two ridges of the palate mentioned above; the inner face is concave and bowed inward, partially covering the pterygoid fossa; the apophyses at the back of the palate are very much lengthened, so that the postnarial foramen is almost boned over in the inter-pterygoid portion: the pterygoid processes, besides being winged and flattened, are very much thickened posteriorly, and are formed of very spongy porous bone: the bone is hollow in the centre, there being a triangular cavity. The whole structure is thus very unlike the form attained in the adult state. This condition of the palate is observed until the animal is almost full-grown, and the abnormal bone-covering appears to be absorbed about the time the permanent premolars are fully grown.

As is usual in Squirrels, the incisors are narrow and of a very pale honey colour in the immature, increasing in size and depth of colour with age till a fine orange-red is attained.

Mr. Dodson noticed these Ground-Squirrels always among rocks; their food seemed to consist entirely of the fruit and kernel of the Argand tree (*Argania sideroxylon*), and they were never found far away from these trees. It is believed that they sometimes congregate into troops of 100 or so and migrate to fresh pastures.

9. Gerbillus shawi, Duv.

(8), 1 ♂, 7 ♀. Morocco city (April), Mogador (June).

10. Gerbillus campestris, Levaill.

(7), 6 ♂, 1 ♀. Azimur, Dukalier, Alloo (April); Mogador, Ras el Ain (June).

11. Mus rattus, L.

(5) Ras el Ain, Schaf el Kab, Ecru. Both the black and brown forms represented.

12. Mus musculus, L.

(2) Schaf el Kab (March).

13. Mus musculus gentilis, Brants.

Mus gentilis, Brants, Muizen, 1827, p. 126.

	Head and body. mm.	Tail. mm.	Hind foot. mm.	Ear. mm.
♂. Enzel, 31st May	78	64	15	12
♂. Ras el Ain, Ahmar, 5th June.	77	55	14	13
♂. Sierzet, Ahmar, 5th June ..	70	53	15	12

"Caught in thorn-bushes." "Among stones in olive-grove."

These Mice do not seem to differ in any way from those of Egypt or Asia, and I see no cause to separate them.

In 'The Zoologist' for 1896, p. 178, Mr. G. E. H. Barrett-Hamilton gives an account of the forms of this Mouse which occur in several countries. I have chosen the present subspecific name in preference to *bactrianus*, as being the earliest given to this form from Egypt, for which identification I have to thank Mr. Oldfield Thomas, who had examined Brants's type in the Berlin Museum.

There seems to be no doubt that *Mus spretus*, Lataste, from Algeria, is simply one of these white-bellied House-Mice which are found always *outside* houses. The cusp or claw spoken of by Lataste may be found in the front of the first upper molar of many examples of *Mus musculus*, and has no value as a specific character.

14. Mus sylvaticus, L.

(4) Schaf el Kab (March).

Cannot be separated from the common "Wood-Mouse" of Europe.

15. Mus peregrinus, sp. n.

Colour above grey washed with brownish yellow, less grizzled on the cheeks and sides; underparts white, not very sharply defined; tail very slightly darker above than below, practically naked.

The general colour of this Mouse is rather like the yellow *M. gentilis*, only the grizzling of the hairs is coarser, more resembling that of *M. sylvaticus*. Compared with the latter it is rather larger in size, the tail is very much less hairy, and the scales finer, in less regular rings.

Type, ♀. Ras el Ain, Haha, 24th June 1897.

Collector's measurements:—Head and body 97 millim.; tail 103; hind-foot 22; ear 18.

Skull.—Nasals 10·6 × 3·3; postorb. constr. 4·4; breadth of zygomata at junction with malar 12·3; length of palate 12·1, pal. foramina 6·5, upper molar series 4·5, diastema 7·3, outside $\frac{\text{ms. 1}}{}$ 5·5, inside $\frac{\text{ms. 1}}{}$ 3.

The single specimen, a young female, shows no sign of mammæ, but I feel little doubt that it will prove to be a northern representative of the well-known Ethiopian mice having more than 12 mammæ. As regards colour, its nearest ally is found in Matabeleland, but in size they differ, as also in the amount of hair on the tail; in fact this Morocco mouse has less hair on its tail than any of the smaller known mice that could be compared with it.

The skull, unfortunately very imperfect, shows undoubtedly close affinity with the "multimammate" group: the pattern of the molars is the same; the incisors above and below are unusually strong; the mandible is also rather stronger than most of its allies, with very short angular processes not extending so far back as the condylar processes.

The discovery of this animal adds another to the list of Ethiopian forms found in the Mediterranean Sub-Region.

16. Arvicanthis barbarus, L.

♀. Enzel on the Great Atlas range east of Morocco city, 31st May, 1897. "Caught in trap under thorn-bushes."

Head and body 113 millim; tail 127; hind foot 25; ear 16.

This animal, so well known in menageries, is very rarely obtained "wild killed;" it is much to be regretted that a full series was not procured.

17. Hystrix cristata, L.

♀. Ecru, 18th June, 1897. Head and body 540 millim.; tail 80; hind foot 90; ear 30.

18. Lepus atlanticus, sp. n. (Skull, figs. 3 & 5, p. 961.)

Size very small; ears very long, considerably longer than the head. Colour light sandy over cinnamon, the fur almost entirely wanting the conspicuous black median band which gives the characteristic mottling to most species; the underparts are white, but there is no sharp line between the colours of the upper and under sides; tail long, jet-black in a broad line above, pure white beneath.

The fur is slate-grey for a considerable distance from the base, the underfur broadly tipped with cinnamon; on the back the grey is of less extent though well marked even there, the greater part of the fur being cinnamon-coloured, but much brighter at the ends; the coarser hairs have only a very narrow dusky median band, the tips tawny, though the extreme tips of some of the hairs are blackish. On the rump the general colour is greyer, the cinnamon colour being less conspicuous. The band on the chest is pale cinnamon, the hairs being dark slate-coloured for nearly their entire length and only tipped with the brighter colour. The nape is bright cinnamon. The fore and hind legs are red-fawn. The long ears have a well-defined black patch on the back of the tips, the inner margin is white, the outer margin golden fawn; whiskers black at the bases, white at the ends.

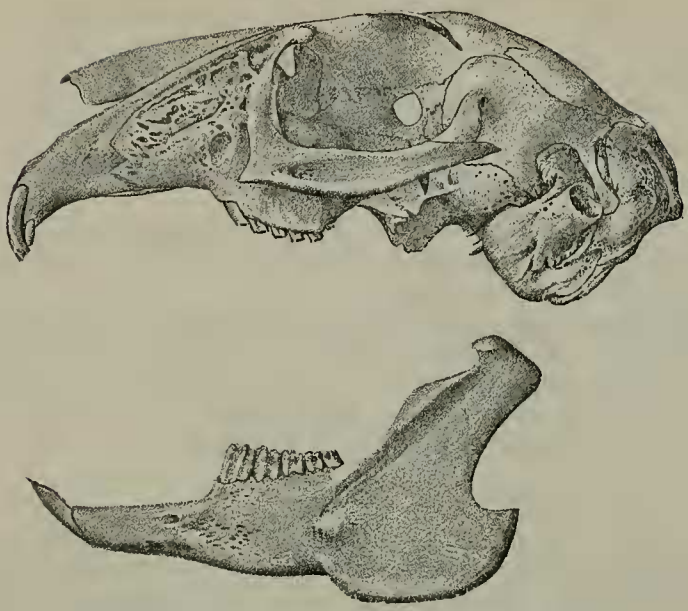
This Hare is unquestionably nearly allied to *L. kabylicus*, mihi[1], from Algiers, but is very much smaller, with longer ears in proportion to its size.

Skull.—Greatest length 76¼ millim.; greatest breadth (squamosals) 36, across front of zygomata 32; length of nasals in middle line 23, greatest length 28, greatest breadth 14·5, across narrowest part 10·5; intertemporal constriction 12; breadth across maxillæ below lachrymals 26; basal length 62; length of upper molar series 13; depth from nasals to palate immediately in front of molars 17, above front of palatal foramina 14; length of mandible (bone only) from back of condylar process to inner side of back of incisors 54·5; greatest height standing on table, perpendicularly to condyle, 31·5.

Type, ♂. Ras el Ain, Haha, 23rd June, 1897. Killed in Arab hunt.

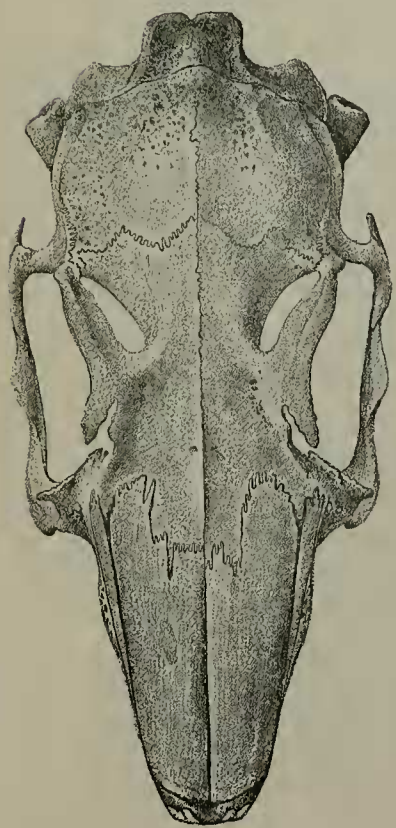
[1] Ann. & Mag. N. H. (7) i. p. 155.

Fig. 3.



Skull of *Lepus atlanticus* (side view). Nat. size.

Fig. 4.



Skull of *Lepus schlumbergeri* (top view). Nat. size.

Fig. 5.

Skull of *Lepus atlanticus* (top view). Nat. size.

Collector's measurements:—Head and body 377 millim.; tail 80; hind foot 100; ear (from notch) 115; in dried skin from the crown 127.

A second specimen, Glarvi, 28th May, 1897:—Head and body 406 millim.; tail 70; hind foot 110; ear (from notch) 120.

19. Lepus schlumbergeri, St. Loup, Bull. Soc. Zool. France, xix. p. 168. (Skull, fig. 4, p. 961.)

♂. Schaf el Kab, 2nd March, 1897. "Lives in burrows" (*E. D.*).

Collector's measurements:—Head and body 470 millim.; tail 50; hind foot 120; ear 103.

The Hare of the neighbourhood of Tangier was described in 1894; a fuller description will be found in the Ann. & Mag. Nat. Hist. for February 1898 by the present writer. The tail of this specimen seems to have been docked, the normal length being proportionately about that of the Common Hare.

20. Lepus cuniculus, L.

Skin and skull, ♂. Karia el Habessi, 19th March, 1897.

This specimen appears to me to agree in every particular with our common Wild Rabbit—an interesting fact, seeing that fresh blood and improving crosses have been so freely indulged in among our British stock.

21. Ovis tragelaphus, Desm.

♀ juv. Ecru, 17th June, 1897.

"Found lying under a rock; no others seen at the time, though several were met with during a 'drive' but not obtained" (*E. D.*).